Land Information System (LIS) Soil Moisture from NASA's SPoRT Center

The NASA Short-term Prediction Research and Transition (SPoRT) Center runs a real-time version of the Noah land surface model at ~3-km resolution over the Continental U.S. The simulations run the NASA Land Information System (LIS) software, incorporating real-time Suomi-NPP green vegetation fraction, radar/gauge-derived precipitation estimates and atmospheric analysis fields to generate daily modeled analyses of soil moisture at prescribed layers within the Noah model soil column. To support analysis of soil moisture leading up to and following the South Carolina floods of late September and early October 2015, these products have been provided to the USGS Hazards Data Distribution System (HDDS) as float-formatted GeoTIFFs in WGS84 projection.

Products include mapping of Relative Soil Moisture (0% wilting, 100% saturation) in the 0-10 cm (near surface) and 0-2 m (total column) layers. The near-surface layer responds quickly to heavy rainfall and indicates near-saturated conditions conducive to significant runoff and flash/river flooding, while the deeper column layers represent longer-term water storage via infiltration from upper layers.

File names:

- sportlis_conus3km_awips_YYYYMMDD_0000_0-10cm-RSM_wgs84.tif
- sportlis_conus3km_awips_YYYYMMDD_0000_0-2m-RSM_wgs84.tif

… where YYYYMMDD_0000 indicates the year, month, and day of the analysis at 0000 UTC, 0-10 cm or 0-2m identifies the layer of interest, and RSM indicates the relative soil moisture product.

The SPoRT team provides training on the use and interpretation of these products:

- a "Quick Guide" as a short PDF to aid in interpretation (attached)
- an "Articulate" narrated module on the use of the LIS output fields
- an "Articulate" narrated module on the development of the LIS outputs

For more information on these products, contact:

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